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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,279	04/24/2001	M. Kivanc Mihcak	MS1-792US	7789

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EXAMINER

KIM, JUNG W

ART UNIT	PAPER NUMBER
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2132

DATE MAILED: 11/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/843,279

Applicant(s)

MIHCAK ET AL.

Examiner

Jung W Kim

Art Unit

2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-36 and 66-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-36 and 66-68 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/03, 11/03, 10/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

1. Claims 25-36 and 66-68 have been examined. Applicant in a preliminary amendment filed on October 27, 2004 canceled claims 1-24, 37-65, 69 and 70.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 25-36 and 66-68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "approximately" in claims 25 and 66 is a relative term which renders the claims indefinite. The term "approximately" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The degree of equivalence of the marked signal to a combination of the digital signal and the combination of the quantized statistics of the one or more segments is rendered indefinite by the term.

#### ***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 34 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 34 is drawn to signals per se, not embodied on a computer-readable medium nor on an electromagnetic wave. See MPEP 2106 IV B. 1(a) and (c); *In re Warmerdam*, 31 USPQ2d 1754, 1760 (Fed. Cir. 1994); and *O'Reilly v. Morse*, 56 U.S. 62, 112-114 (1853).

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 25-27, 30-32 and 34-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Inoue et al. U.S. Patent No. 6,477,276 (hereinafter Inoue).

7. As per claim 25, Inoue discloses a method facilitating protection of digital signals (see Inoue, Abstract), the method comprising:

- a. partitioning a digital signal into segments (see Inoue, col. 4, lines 51-59);
- b. for one or more segments:
  - i. calculating statistics of a segment that are representative of that segment (see Inoue, col. 4, lines 60-62);
  - ii. quantizing such statistics of a segment (see Inoue, col. 4, lines 62-65);

- iii. generating a marked signal approximately equivalent to a combination of the digital signal and the combination of the quantized statistics of the one or more segments (see Inoue, col. 4, line 66-col. 5, line 15).

The aforementioned cover the limitations of claim 25.

8. As per claim 26, Inoue discloses a method as outlined above in the claim 25 rejection under 35 U.S.C. 102(b). In addition, normalizing the amplitude of a digital signal, wherein such a signal is an original, unmarked signal is a standard preprocessing step prior to a discrete wavelet transform of the signal. See Inoue, col. 4, line 53. The aforementioned cover the limitations of claim 26.

9. As per claim 27, Inoue discloses a method as outlined above in the claim 25 rejection under 35 U.S.C. 102(e). In addition, the method further comprises transforming the signal. See Inoue, col. 4, line 53. The aforementioned cover the limitations of claim 27.

10. As per claim 30, Inoue discloses a method as outlined above in the claim 25 rejection under 35 U.S.C. 102(e). In addition, the statistics of the calculating comprises one or more finite order moments of a segment (inherent step to calculate mean value). See Inoue, col. 4, line 61. The aforementioned cover the limitations of claim 30.

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11. As per claims 31 and 32, Inoue discloses a method as outlined above in the claim 25 rejection under 35 U.S.C. 102(e). In addition, the method further comprises determining a delta-sequence that is representative of the combination of the quantized statistics of the one or more segments. See Inoue, col. 4, line 66-col. 5, line 16. The aforementioned cover the limitations of claims 31 and 32.

12. As per claim 34-36 Inoue discloses a method as outlined above in the claim 25 rejection under 35 U.S.C. 102(e). In addition, Inoue discloses a computer-readable medium having computer-executable instructions that, when executed by a computer, performs the aforementioned method. See Inoue, claims 11 and 17. The aforementioned cover the limitations of claims 34-36.

13. As per claim 66, it is a system claim corresponding to claim 25, and it does not teach or define above the information claimed in claim 25. Therefore, claim 66 is rejected as being anticipated by Inoue for the same reasons set forth in the rejections of claim 25.

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Chen et al. "Achievable Performance of Digital Watermarking Systems" (hereinafter Chen).

17. As per claim 33, Inoue discloses a method as outlined above in the claim 25 rejection under 35 U.S.C. 102(e). Inoue does not teach embedding a watermark via quantization index modulation (QIM). Chen teaches embedding a watermark using QIM to ensure degradation of the original signal if an attacker attempts to remove the watermark. See Chen, page 17, section 5.1. It would be obvious to one of ordinary skill in the art at the time the invention was made to embed a watermark using QIM to implement a robust embedding system as taught by Chen. Ibid. The aforementioned cover the limitations of claim 33.

***Allowable Subject Matter***

18. Claims 28, 29, 67 and 68 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: Claims 28, 29, 67 and 68 are drawn to a method and system for facilitating protection of digital signals. The closest prior art, Inoue et al. U.S. Patent No. 6,477,276 and Chen et al. "Achievable Performance of Digital Watermarking Systems", disclose a similar communications system. However, neither Inoue et al. nor Chen et al. teach or suggest pseudo-randomly segmenting a signal, calculating statistics of at least one of the segments that are representative of that segment, quantizing the statistics of the segment and using the quantized statistics via QIM to embed a watermark in the digital signal. See Disclosure, page 8, 'Limitations of Conventional QIM'; pages 13-14, 'Local Characteristics' and 'Non-Local Characteristics'; pages 16-19, 'Exemplary Non-local QIM Watermark Embedding System'; pages 19-21, 'Methodological Implementation of the Exemplary Non-Local QIM Watermark Embedding'.



***Telephonic Inquiry Contacts***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung W Kim whose telephone number is (571) 272-3804. The examiner can normally be reached on M-F 9:00-5:00.

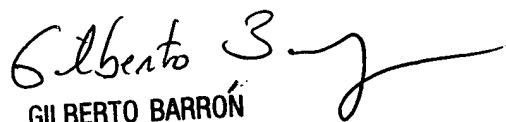
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571) 272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jung W Kim  
Examiner  
Art Unit 2132

Jk  
November 1, 2004



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